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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/520,520

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Hiroshisa Tanaka

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01/07/2009

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EXAMINER

D'ANIELLO, NICHOLAS P

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/520,520

**Applicant(s)**

TANAKA ET AL.

**Examiner**

Nicholas P. D'Aniello

**Art Unit**

1793

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-7 and 9-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-7 and 9-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 4<sup>th</sup> 2008 has been entered. The rejections have been maintained with the references of record, therefore no PTO-892 is attached hereto.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3-5 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshiyuki et al. (Patent Abstracts of Japan JP 63-302950 hereinafter "Yoshiyuki", of record) in view of Kaneko et al. (US Publication No. 2001/0053467 hereinafter "Kaneko", of record) and Noguchi et al. (US Patent No. 4,237,030 hereinafter "Noguchi", of record).

Yoshiyuki teaches a process for producing a catalyst for waste gas purification in which an un-crystallized composition of perovskite composite oxide compound is heat

treated together with alumina, whereby the perovskite-type composite oxide is supported on theta-alumina and/or alpha-alumina (see abstract).

Independent claim 1 differs from the reference in calling for the use of alpha or theta alumina; and for the perovskite to conform to a particular formula and contain a noble metal.

Kaneko teaches a catalyst composition containing a perovskite composite oxide of the type expressed by a rational formula  $ABO_3$ , wherein A consists of two types of constituent elements of A' and A" and B consists of two types of constituent elements of B' and B", and the perovskite composite oxide is expressed by a general formula  $A'_1-xA''_x B'_{1-y} B''_y O_3$ . The A' is La or Ce, the A" is at least one element selected from the group consisting of La, Ca, Sm, Ce, Sr, Ba and Pr, the B' is at least one type element selected from the group consisting of Co, Fe, Mn and Gd, and the B" is any one type of a noble metal such as Ru, Rh, Pd, Pt, or the like. Further, Kaneko does not preclude y or x from being 0 and therefore this composition includes  $LaFe_{1-y}Pd_yO_3$  (see abstract, paragraph [0014]). This catalyst composition has a wide range of use and high durability in an oxidizing atmosphere (such as clarifying exhaust gas) (paragraph [0037]).

Therefore, it would have been obvious to one of ordinary skill in the art to use the perovskite-type composite oxide containing a noble metal taught by Kaneko for the perovskite composite oxide in the pre-crystalline composition in the method of Yoshiyuki in order to obtain a catalyst composition has a wide range of use and high durability in an oxidizing atmosphere as taught by Kaneko.

Additionally, it would have been obvious in the art to use alpha or theta alumina in the method of Yoshiyuki because Noguchi teaches a catalyst for purifying exhaust gas where the catalyst support is mainly comprised of alpha-alumina because it is the most thermally stable form of alumina, which is desirable for high temperature application such as exhaust (waste) gas purification (column 4, lines 28-39).

In regard to **claim 3**, as noted above, Kaneko teach the noble metal to be Pd.

In regard to **claim 4**, as noted above, this composition includes  $\text{LaFe}_{1-y}\text{Pd}_y\text{O}_3$ .

In regard to **claim 5**, alumina inherently contains  $\text{Al}_2\text{O}_3$  which falls in the claimed range.

In regard to **claim 9**, as noted above, Kaneko teaches the pre-crystallization composition comprises elementary components where B" is any one type of a noble metal such as Ru, Rh, Pd, Pt (paragraph [0014]).

In regard to **claims 10 and 11**, in the modified version of Yoshiyuki, the noble metal is mixed in with the alumina (alpha or theta) and the perovskite (as it is part of the perovskite per Kaneko) in the same step (abstract).

3. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshiyuki, Kaneko and Noguchi as applied to claim 1 above, and further in view of JP 11-262663 (hereinafter JP '663, of record).

Yoshiyuki and Noguchi teach a method of making a catalyst as applied to claim 1. Claims 6 and 7 differ from the references in calling for preparing the composition by mixing the solution containing alkoxides of the perovskite with an organometallic salt of

the noble metal. However it would have been obvious to one of ordinary skill at the time the invention was made to make the pre-crystallization composition in such a manner because JP '663 teaches a method of making a catalyst by using an organometallic salt of the noble metal (specifically platinum) and an alkoxide other than one of the noble metal as starting materials for a catalyst for waste gas purification. Further, the desirability to mix the organometallic salt with a solvent such as alcohol or ether and mixtures thereof and the ability to obtain a gel by mixing with acetyl acetone (a diketone, claim 7) is taught (claim 2, paragraph [0016], a machine translation of the publication has been provided, ARUKOKISHIDO meaning organometallic).

### ***Response to Arguments***

Applicant's arguments with respect to the claims have been considered but are not persuasive. Specifically the amendment to claim 1 does not distinguish the claimed method from the combination of the references. In the modified method of Yoshiyuki the perovskite type oxide contains the noble metal (in view of Kaneko) and the perovskite composite oxide compound is heat treated together with alumina, whereby the perovskite-type composite oxide is supported on theta-alumina and/or alpha-alumina (in view of Noguchi); in other words, in the modified method of Yoshiyuki the noble metals are in the crystal structure of the perovskite type oxide and is supported on the alumina from the heat treating process. The fact that in Yoshiyuki et al. the noble metal is

supported on the alumina and perovskite type oxide is inconsequential as the method does not preclude additional steps (claim recites "A method... comprises the steps of:") which would form the catalyst with a different structure as taught by Yoshiyuki et al.

### ***Inquiries***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas P. D'Aniello whose telephone number is (571)270-3635. The examiner can normally be reached on Monday through Thursday from 8am to 5pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on (571) 272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. P. D./

Examiner, Art Unit 1793

/Jessica L. Ward/

Supervisory Patent Examiner, Art Unit 1793